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ABSTRACT

This monograph describes a suggested approach to career education for handicapped students that focuses on two aspects of the career development process, career exploration and development of an academic program reflecting vocational needs. Discussed in the section on career exploration are career goals, the teacher-counselor role, individual competencies, career alternatives, community assessment of job availability, selecting a career path, simulated job experiences, survival skills, personal skills related to independent living, and themes to explore in social development. The second half of the guide deals with various topics pertaining to developing an appropriate academic program, including traditional educational programming; issues in instruction (practicality, abstract thinking, readability level, and regular testing); academic strategies (using alternative texts, student- developed texts, and modifying materials); reading (the visual, auditory, kinesthetic, tactile method of instruction, and linguistic reading); mathematics; written instruction; handwriting; speech; job training; integrated basic-skill development; and task analysis. A list of references is appended. (MN)

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Career Education for Handicapped Students: A Suggested Approach

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CAREER EDUCATION FOR HANDICAPPED STUDENTS: A SUGGESTED APPROACH

During the decade of the seventies, much attention was given to the career preparation of handicapped individuals. It is the belief of the authors that the potential of handicapped students will only be realized through the delivery of nontraditional, career preparation programming. The process of career preparation is multifaceted. It includes personal development, academic development, work attitudes, vocational aptitudes and work experience (Jones, Blaney and Sabatino, 1975). It is necessary to operationalize a career education program for educationally handicapped youth to assist students learn the multifaceted skills that they will need to develop life-long independent learning skills. This monograph will describe a model that will focus on two aspects of the career development process:

1. Career exploration,
2. Development of an academic program reflecting vocational needs.

CAREER EXPLORATION

Career Goals

During adolescence, the individual's interests and goals are fluid. His or her interest may be the result of parental guidance, peer attitudes, school program availability, or identification with glamorous role models (Maiers, 1969). Many handicapped youth, at this age, have narrow career interests and almost no comprehension of the range of skills, academic, cognitive, psychomotor, and social, required for careers requiring minimal competencies. Therefore there is a need to help handicapped students identify their interests and help them recognize career prerequisites in terms of academic performance, social maturity, and manual competencies. Handicapped students also need to be familiar with the anticipated training requirements of a career as specified by relevant agencies or society. Students often select careers without such information and subsequently experience failure, frustration, and/or disillusionment. Handicapped students may already have a long history of such failure. The continuation of negative exeriences will foster a negative self-concept. It is the school's responsibility to assist handicapped students channel their broad interests into fields where achievement is possible. This process does not preclude the handicapped student from ultimately seeking the stated goal within the interest area. It does mean the school is attempting to structure the process into more manageable

incremental steps. The expression of a career interest should be encouraged and supported and should be ultimately harnessed so as to direct learning, training, and lifelong planning.

The Teacher-Counselor Role

The identification of career goals can be facilitated through the assistance of a teacher-counselor. The teacher-counselor model is an intense and direct approach to facilitating career choices. It is ideally suited to the handicapped youth because it relies on direct discussion pertinent to daily activities. The model minimizes the need for abstract thinking, long-term memory, and complex language. Rather than assuming that the youth has internalized and clarified a career choice, the teacher-counselor provides subsequent experiences that help the youth affirm or reject career decisions. These activities may range from exposure to other occupations that may be more desirable to actual placement on the selected job.

Teacher-counselors are ideally suited to implementing this process as they are the professionals responsible for the development of the individual program. Additionally, they are the professionals most closely associated with educational/vocational activities that force career choices.

The following themes may be included in the counseling process as part of the student's career exploration program.

Individual Competencies

The collection of data on the handicapped youth is an

essential component of the counseling process. This information will enable the teacher-counselor to evaluate the interface between expressed career goals and demonstrated school and community competencies. Frequently there is a wide gap between the handicapped student's goal and his or her potential. For instance, if a handicapped student who does poorly in mathematics indicates an interest in becoming a plumber, discussions about the importance of mathematics in this trade area could be used by the teacher-counselor to motivate the student to focus on mathematics achievement or to channel the student into alternative career choices.

The data on the handicapped student's performance will also allow the teacher-counselor to assess the accuracy of the student's self-perception. Sabatino (1980) noted that discrepancies in handicapped student performance can occur as a result of peer pressure or instructional appropriateness within the school. Some handicapped students do poorly on tests while performing well in the classroom, or they may do poorly in class but well on the test. It is important that teacher-counselors note whether expected social or cognitive behaviors are compatible with observed performance. The recognition of situational disorders can enable the teacher-counselor to assist the handicapped student recognize situational variances and develop adaptive responses to varying settings. This situational variance will also have an influence on the type of career counseling the student can and should receive.

Teacher-counselors need to remain cognizant of the fact that

some handicapped students may demonstrate a discrepancy between classroom performance and test performance and between classroom behavior and home behavior. This discrepancy could be the result of family conflict, peer pressure, school expectations or a variety of other factors. Unfortunately, formal test scores are the primary tool used to evaluate an individual's performance. Seldom does the school look to school performance and the behavior of the student at home or in the community to establish the reliability of its observations and expectations. As a result, many educational and career related decisions are based on a biased sampling. The teacher-counselor should explore the possibility of such discrepancies with each handicapped youth. While teachers can provide information about school performance, the teacher-counselor should obtain information on performance outside of school from parents, peers, and social workers. If discrepancies are found, reevaluation and program revisions will be required.

Career Alternatives

Once information has been gathered on school, home, and community performance, the process of identifying and evaluating a variety of career options can be effectively initiated. During the beginning stages of the exploration, the teacher-counselor may find it beneficial to investigate career clusters. Career clusters in the fast food area, for example, might include jobs in building maintenance, food preparation, order taking, bookkeeping, operations management, personnel training, and regional franchise

liaison. Handicapped youths frequently do not recognize the range of career options available within a career choice. It is the responsibility of the teacher-counselor to provide the handicapped youth with information about the career cluster and career ladder.

Community Assessment of Job Availability

If the handicapped student's interests, test scores, school and community performance, and goals for the future do not coincide with the needs of the community, the handicapped youth's ability to obtain a position may be seriously impaired. For this reason, the teacher-counselors should use various resources to identify the present and future job market needs. These resources include the state department of employment, social workers, occupational coordinators, the local newspaper, and the questioning of local employers. Without such information, handicapped students could be trained for positions no longer available or soon to be phased out. Among the questions that should be raised with agencies, corporations, and individuals are:

1. What areas are currently seeking trained and untrained personnel?
2. What are the anticipated employment trends in the community in the next five to ten years?
3. What are the minimal social skills employers require of prospective employees?
4. What types of motor and mechanical skills are required by prospective employers for these various positions?
5. What levels of verbal and written language and mathematics performance are expected of prospective employees per position?

6. What positions expose the employee to continued frustration?

Obviously, other questions can be raised. The important point is that community contact must be initiated and maintained as the school seeks to prepare handicapped youth to assume positions in the community.

Selecting a Career Path

Once a particular career direction has been selected, the youth may feel they have been excluded from other types of training and potential employment opportunities. For this reason, handicapped youth may become uncomfortable when they are required to select a path leading to career development and employment. While ambivalence can be found among handicapped youth expected to make a choice, the selection of a career is critical to the social maturation process. Perls (1959) noted that individuals are often unprepared to accept the consequences of their behavior, an ability that is required for the individual to grow. Students may need help to understand that their decisions are not irreversible. It might be helpful for them to talk to adults who have made multiple career changes.

Simulated Job Experiences

Once a preliminary career direction is selected, students can test the water through simulated job experiences. Simulated job experiences allow students to perform tasks associated with their selected career path. The simulation will provide the

teacher-counselor and the student with feedback that will help them determine the appropriateness of the career decisions. As a result, minor or major program changes can be initiated.

A time limit for this investigative process should be established prior to the actual career exploration process. Often students will become discouraged at the early stages of the process and seek premature changes. A time limit will encourage the students to work their way through disappointments and frustrations before making a decision on the career direction's appropriateness and efficacy. However, the time limit should not be perceived by school officials as something irrevocable. Conditions may arise that will require early decision making and the establishment of a new career training program.

Survival Skills

Handicapped students are often not prepared for the transition from school to independent work. They may lack the skills needed to identify a potential job, to dress appropriately, to communicate appropriately, and to perform various essential skills. Handicapped youth must be prepared for independent living. This preparation should include the development of personal skills as well as social skills. Appropriate personal-social skills enable individuals to interact with peers, authority figures, parents, and others in an effective, rewarding manner. This personal-social development should be emphasized carefully by all school personnel and must be explored during the career preparation process. A summary of some of the major

personal-social skills are included in Figure One and Figure Two. Obviously, the dissemination of this information cannot be the sole responsibility of the teacher-counselor. Much of the information can be acquired in such classes as consumer education, civics, home economics, mathematics, and senior problems.

FIGURE ONE

Personal Development Skills Related To Independent Living

1. Exploration of personal finances
   - 1.1 prudent vs. imprudent expenditures
   - 1.2 use of bank facilities (money exchange, bank accounting, savings accounting, safety deposits, credit/loans)
   - 1.3 maintenance of financial records
   - 1.4 calculation and payment of taxes
   - 1.5 social security payments and other forms of retirement benefits
   - 1.6 purpose and function of insurance programs
   - 1.7 purpose and function of workmen's compensation

2. Selection, purchase, management, and maintenance of residence
   - 2.1 selection of adequate housing
   - 2.2 purchase of a home with consideration of interest rates and bonus
   - 2.3 physical and aesthetic maintenance of a home
   - 2.4 purchase and maintenance of home furnishings and appliances

3. Personal dress and hygiene
   - 3.1 selection of appropriate dress for work, school, social, recreational activities
   - 3.2 proper grooming
   - 3.3 hygiene principles
   - 3.4 physical fitness and its relationship to health
   - 3.5 good nutrition in meal planning, food purchases, and food preparation
   - 3.6 table manners
   - 3.7 food preservation
   - 3.8 sanitation
   - 3.9 personal grooming
   - 3.10 health care services

4. Family life
   - 4.1 dating
   - 4.2 courting
   - 4.3 sexual relationships

4.4 financial and personal responsibilities involved in marriage
4.5 responsibilities in child care
4.6 family safety procedures and practice
4.7 family planning

5. Civic activities

5.1 local government procedures and regulations
5.2 American government procedures and regulations
5.3 personal rights and responsibilities as a citizen
5.4 Selective Service System
5.5 voting rights

6. Recreation and leisure time

6.1 individual and group leisure time activities
6.2 available resources
6.3 the value of recreation
6.4 planned recreation and vacations

7. Mobility and transportation

7.1 knowledge of traffic rules and safety practices as related to
7.1.1 pedestrians
7.1.2 vehicle operator of motorcycle, bicycle, automobile, school bus, and train
7.2 responsibilities involved in automotive ownership including automotive purchases, automotive ownership, automotive insurance-liabilities, legal aspects, work and leisure

8. Job Search Skills

8.1 how to survey the help wanted section of the newspaper
8.2 how to complete job applications
8.3 the necessity of applying to several employers
8.4 how to evaluate the various job possibilities through the use of the telephone
8.5 interviewing skills

FIGURE TWO

Themes To Explore In Social Development

1. Attain sufficient self-understanding

   1.1 identify interests
   1.2 identify abilities
   1.3 identify reactions to a variety of events
   1.4 identify personal needs and social goals
   1.5 understand physical self

2. Establish positive self-confidence, self-concept

   2.1 feelings of self-worth
   2.2 how others perceive him or her
   2.3 criticism by others

3. Desire and achieve social responsibility

   3.1 respect for the rights and properties of others
   3.2 ability to recognize and follow instructions, rules, etc.
   3.3 personal roles in changing environments
   3.4 multicultural values

4. Find, choose, develop, and maintain interpersonal bonds

   4.1 listening and responding to others
   4.2 making and maintaining friendships
   4.3 establishing heterosexual relationships
   4.4 establishing close interpersonal bonds

5. Achieve independence

   5.1 the impact of one person's behavior on others
   5.2 the need for self-organization
   5.3 goal-seeking behavior
   5.4 self-actualization

6. Make good decisions and solve problems

   6.1 differentiate bipolar concepts
   6.2 understand the need for goals
   6.3 consider alternatives
   6.4 anticipate consequences
   6.5 seek counsel

7. Communicate appropriately with others

7.1 recognition of emergency situations
7.2 understanding of the need for effective reading
7.3 understanding of the need for effective communication in writing and oral speech
7.4 understanding the subtl>ties of mass and/or personal communication

DEVELOPING AN APPROPRIATE ACADEMIC PROGRAM

Once a career path has been selected, the youth and teacher-counselor must work cooperatively to establish an academic program that reflects his or her vocational needs. The career preparation program requires cooperation and interaction among school personnel, if the academic content of the program is to interface with the needs of the student's career pattern and vocational training. The special educator, resource room teacher, or the school counselor are likely personnel to coordinate each of the training pieces. Whoever may be the coordinator, it is imperative that the students' mathematics, language, science, health, and/or social studies instruction reflect the priorities of their career pattern and vocational training.

Traditional Educational Programming

In the secondary school setting, the general tendency has been to focus on the student's academic deficiency, such as reading, mathematics, and language arts (Miller, 1978). Many youths receiving this traditional programming have long histories of failure and frustration, yet schools continue to expose these students to a continuous process of remedial reading instruction, skill building exercises, and tutorial assistance. It is easy to see how these programs can come to be viewed by students as unrelated to outside world expectations and demands. This may be the reason that such programs have been unsuccessful for most

handicapped adolescents, as evidenced by the student's continuance in the Special Education program. Given the evidence that the handicapped adolescent is typically provided instruction through traditional techniques designed generally to serve handicapped primary age children (Sabatino, 1974), school personnel need to question the efficacy of their programs and procedures for serving the handicapped adolescent.

The assistance the handicapped student requires does not exclude the basic academic areas, and in fact, one's values, goals, and identity are often closely associated with school performance in the academic areas. One approach to serving the adolescent is combining the content and academic areas, and providing the youth career related instruction, through high interest, low vocabulary readers. Publishers of educational materials have begun to focus on the development of new easier to read materials directed toward career issues, as well as science and history. This section is designed to provide content oriented personnel, who daily serve handicapped youth with academic disabilities in reading, mathematics, written and spoken language, with suggestions which may enable them to transmit information and develop those skills essential for career development.

Issues in Instruction

Practicality. Jones (1974) observed that public schools have not oriented their programs to interface the academic deficiencies of handicapped youth with their educational needs. Schloss and Miller (unpublished manuscript) noted that the ecological setting

the youth is placed in unduly influences the program students are provided by school personnel, irrespective of the youth's needs and capabilities. Such findings suggest that many youth are not receiving career related information and instruction. It has been suggested that such inappropriate programs contribute to a higher number of educationally handicapped youth dropping out of school (Jones, 1974, and Sabatino, 1974). Obviously, schools must begin to develop curriculum which is oriented more toward the career goals of the youth and less to the prerequisite liberal arts requirements of colleges and universities. The secondary school's traditional curriculum has alienated the handicapped youth, by neglecting his or her career needs.

Abstract Thinking. Career programming does not exclude the development of abstract thinking, as is often thought. Maslow (1969) and Ausubel (1969) have indicated that an individual's ability to learn and function in his or her environment is directly related to their ability to think abstractly.

Handicapped youth need to be taught abstract terms, what they represent, and how they can be used to promote learning and career development. For some youth, for example, the phrase "Career Education" may mean only another class they must attend. While to others the concept of Career Education may represent a variety of experiences which can ultimately lead to the development of specific skills which lead to a position in the community, whether that position be one of physician, carpenter, or fast food preparer. Among the factors associated with the development of abstract thinking are: (a) observing factors associated with a

series of events or ideas, (b) developing a concept based on the observations, (c) continuous analysis of the concept, (d) testing the concept through an experiment or series of activities, (e) evaluating the results of the activities or experiment with other findings and conclusions, (f) generalizing the finds and (g) predicting future behavior of events as a result of the findings, (Fraenkel, 1973).

Readability Level. Many handicapped youths find the reading material presented to them too difficult. The use of readability measures can enable the teacher to avoid negative reading experiences and rejection of the learning process. One of the simplest ways of measuring a books readability is by: (a) determining the average length of a sentence, and (b) the percentage of difficulty that the student is expected to master. Spache (1953) devised the formula and notes the determination of difficult words was based on the words which were familiar (easy words) and words which were unfamiliar (difficult words). Familiar words are: (a) all letters in the alphabet, (b) regular verbs, (c) plurals and possessives, and (d) first names of persons. Unfamiliar words are: (a) irregular words, (b) words with adjectival or adverbial endings ("17", "er", and "est"), (c) count unfamiliar words only once, and (d) counting family names or relations (aunt, uncle) as unfamiliar. A number of authors have developed other techniques for identifying the level of reading material (Harris and Sipay, 1975; Smith, Guice, and Cheek, 1972).

Length of Text. Adolescents often find the texts they are expected to handle within a specified time too long. Their poor

performance makes the length of standard reading and mathematic material burdensome, and frequently dooms them to failure and frustration. School personnel need to recognize that a significant amount of the material is not designed to interface with the student's needs and academic abilities. Several solutions to the problem of material being inappropriately designed are available. They include:

1. The length of material can be reduced: Material normally consumed by nonhandicapped students in a day may be broken-down into two to three days of assignments for the handicapped youth. Tests can then be developed which cover the abbreviated material assigned on a specific day.

2. Material can be rewritten: Lengthy long texts with unfamiliar vocabulary, can be rewritten to reflect the student's performance level. Sentences can be abbreviated, vocabulary made more concrete and ideas condensed.

3. Already existing alternative materials can be used: Several publishers have been developing material which, while focusing on similar themes, present them in an easier to comprehend format for both handicapped and disadvantaged populations.

4. Follow-up: Handicapped youths exhibit a variety of handicaps, including poor long-term and/or short-term memory, inability to identify critical issues, and/or draw inference. Some textbook publishers have recognized the need to develop these skills and have included in texts, follow-up questions which address specific education weaknesses. Among the types of follow-ups that have been developed include: (a) recall for detail, (b) recall inferred behavior, (c) interpretation of events, (d) locating information, (e) organizing the sequence of events, (f) deciphering maps, charts, and tables, and (g) summarizing the story. Use of such follow-up questions regularly will allow the student and teacher to measure progress so that program changes can be made as it becomes obvious that the material is either too

challenging or fails to challenge the youth (Hallahan and Kauffman, 1976).

Regular Testing. The result of irregular testing, is that neither the teacher nor the student are informed about his or her overall progress and the areas where growth are greatest and least. The ability of personnel to develop an ongoing program that is relevant and successful is thus impaired. The detection of problem areas early can enable personnel to correct the instructional process before it begins to effect the student's progress. Schools too often rely on annual standardized testing. The data yielded by these tests have neither been timely or informative. Criterion based testing may be more beneficial in that it yields data which measures either daily, weekly and/or monthly student progress.

Academic Strategies

Educators in the fields of reading, special education, vocational education, and math education have formulated principles to facilitate the instruction and the remediation of handicapped students. Among the principles are:

1. Instruction must be designed to interface with the needs and demonstrated competencies of specific students.
2. Instruction should match the student's interests and preparedness to learn.
3. Students are more likely to maintain interest in and benefit from a program which they have helped to develop.
4. During the process of learning, monitor whether the student can receive the information, and can understand the information before seeking to have the student explain the information.

5. Avoid overloading the youth to the point he or she is unwilling to resume the learning process.

6. Promote learning without taxing skills or channels that are severely impaired.

7. Control factors such as attention, rate, intensity, and process.

8. Be certain that both the verbal and motor channels of expression are fully developed.

9. Guide the approach through clearly articulated and attainable set of goals, objectives and activities.

10. Provide all personnel serving the youth a clearly established program which articulates their role in the service delivery process.

The point to be gleaned from these principles is that school personnel must explore new approaches to addressing continuing deficits. The traditional strategy is to have the youth go through a text a second time in expectation that the mastery not achieved during the first exposure will be achieved in subsequent experiences. This approach will merely result in overt rejection or questioning by the student. "I don't want to do this baby stuff again", "Oh, I don't want to do this, I've done it already", "Can't I do something else?" are likely to be the handicapped student's reaction to such strategies. Thus, new approaches and creative adoption of old approaches needs to be considered in educating the handicapped youth. Among some of these innovative approaches are:

The Use of Alternating Texts. Usually a student will use one reading text at a time. With handicapped youth, this approach can

lead to frustration and failure. Teachers need to identify and select four to five texts that can be used in a predictable, structured sequence. Each text should address different skills so that the lesson is both remedial and supportive of skill areas considered adequate. This approach will be most effective if the texts are developmental and paced at a rate in concern with the student's learning style and programmatic needs. The use of the alternating text is also likely to promote a high level of interest among the youth.

Student Developed Texts. Low functioning youth will frequently reject formal reading material because of their previous failure experiences. The will at times reacts favorably to a text which they have helped to create. Such student developed texts should be built upon the interests of the youth, and not the interest of the teacher or the school. If the youth's interests revolve around boats and fishing then the words and stories should also reflect those personal focuses. As the materials are developed, words from the Dolch List and the Dale-Chall Word List can be integrated into the material. Both lists represent commonly used words found in both children, adolescent, and adult materials. The integration of the word lists and words chosen by the youth will allow the teacher to slowly bridge the gap between the youth's materials and formal materials that are geared to the same functional level of reading but having a different focus.

Popular Press. For those students who have difficulty with formal reading material, the popular press is a viable

alternative. Newspapers, sports magazines, and teen magazines are popular reading materials with adolescents. These materials generally represent high interest, low vocabulary material. Many major newspapers for instance are written for individuals with 5th and 6th grade reading skills, and they cover such diverse issues as sports, job opportunities, movies, television, and teenage dating. Magazines tend to be more specialized and can address career areas as auto mechanics, motorcycle performance. teenage fashions, food preparation, and family life. One of the dangers in using the popular press is that frequently adolescents become resistant to reading more challenging formal text material. So, when possible, the use of the popular press should be used to promote reading, but not become the sole source of reading.

Modify Material. Modify material so that it is presented at the student's performance level.

1. As an example, the following sentence could be edited to be more easily read: The youth, only 14 years old, had demonstrated a unique and unparalleled capacity to grasp ideas and transform them into operational community projects. Revised, the material could read: The 14 year old boy was smart. He could learn new ideas and put them to use. This impressed people.

2. Match a picture of the object with the noun that describes the object, when students have difficulty with a noun. For example, a picture of a racing car next to the word "racer".

3. When students cannot understand a verb, pair the verb with a picture that illustrates the action. Such as, pairing the word "jog" with a picture of a person jogging.

4. Tape the story the student is expected to read, then let the student follow along in the book while listening to the tape. After

taping, have the student reread the material into the tape recorder and then monitor the tape to determine student's level of vocabulary, word attach skills, fluency, comprehension, error rate.

Reading

Reading is an important learning and social skill. Its importance is suggested by the observations that ones ability to obtain a drivers license, complete a job application, follow directions, write letters, or read street signs, movie marque, or a restaurant's menu. Poor reading is a prime obstacle to an adolescent seeking to secure a desired career. The following are varying approaches to assisting youth overcome their reading difficulties. The difficulties may include poor,

1. sound articulation,
2. visual-auditory associate,
3. visual and/or auditory memory,
4. word recognition,
5. comprehension of details,
6. comprehension of underlying themes,
7. motivation.

Visual, Auditory, Kinesthetic, Tactile (VAKT) Method. The Grace Fernald and Helen Keller method enables the teacher to offer the student an individual program. One basic supposition of the program is that handicapped student's initial learning can be best promoted through a sensory motor approach. Many handicapped youth who have had difficulty with phonics and "Look and Say", improve their reading skills significantly when taught through the VAKT methods.

Linguistic Reading. Linguistics is a specific approach toward reading developed by Fry (1972). It employs ingredients of

both the phonemic approach--knowing basic sounds relative to consonants, vowels, letter pairing and the look-say approach--visually decoding whole words by learning the words name. The position of the reading strategy is that the phonemic approach is too inconsistent in the various sound patterns ("ou" having various pronunciations-- out, ought, rough) and the whole word approaches does not provide the individual tools for analysis and deciphering of words the student is unfamiliar with.

Some students will always have difficulty with reading regardless of the teaching approach used. Some authors have suggested that these students be treated as though they are functionally blind. This means the school would educate them as though they were blind, using talking books, and/or enlisting a teacher of braille who can provide the student braille instruction (Quisenberry, Miller, Johnson, and Sachs, 1981).

Mathematics

The learning of mathematic skills is also an important career development and personal survival tool. It is a process and skill required in daily living, and youth without such skills are limited in their career choices. Those areas that students must possess competency in to survive in our contemporary society have been delineated by Alley and Deshler (1979) and include:

1. The ability to use measuring devices to determine the size or volume of an object or series of objects.
2. Computational skills to determine the size or volume of objects which are not sequential.
3. The relationship of objects, such as

equivalent, parallel, similar, dissimilar, and non-equalent.

4. The ability to estimate or approximate size or volume using a systematic mathematical process.

5. The ability to determine if with the available information a problem can be solved.

6. The ability to read and analyze graphic representations of basic number facts, such as in graphs or maps.

7. Use of basic logic to analyze and solve problems.

8. The use of geometric concepts such as square feet and volume to determine, again, size and quantity.

The goal in teaching mathematic skills is to help students develop a systematic approach in their attempts at solving number-related problems which they will encounter in everyday life and in the pursuit of careers. When a teacher presents mathematical problems to a handicapped student, it is important to start with three dimensional objects. For example, when using the basic addition process, use sets of sticks, or basic measuring devices, and only then move toward the pictorial representation of the product being addressed in the problem. Only after the discussion of the interface between the objects and the illustrations should numerical concepts be introduced. Note that those principles applicable to the teaching of reading are also applicable to the teaching of mathematics, and a carefully and tightly sequenced series of steps can be employed which facilitates the process. This process is applicable whether the instruction involves addition, subtraction, multiplication, division, or more analytic processes.

Written Expression

Handicapped youth typically have difficulty with the process of written expression. Even for normal achieving youths and adults and college students on the graduate and undergraduate levels, the ability to express oneself in writing lags behind their other skills. The process is actually a composite of the following skills:

A. The ability to receive and memorize information.

B. The ability to identify the general category information to, but also the ability to shift the information to other appropriate categories or subsumptions.

C. The ability to relate existing information to newly received information.

D. The ability to organize all relevant information around a central theme.

E. The ability to present that information in written form on paper.

Students are often reluctant to put their ideas on paper because of (a) poor spelling skills, (b) poor idea organization skills, (c) poor written syntax, and/or (d) critical feedback from the teacher-critic. Teachers often return papers covered in red-inked criticisms. As a result, students are often hesitant to repeat an experience that is viewed as negative and personally deflating. The teacher needs to develop procedures to promote written expression that focus on the youth's interests and are structured to promote success.

Handwriting

Schools continually attempt to alter the adolescent's handwriting in the secondary school environment despite the fact that by the time an adolescent reaches the secondary school environment, handwriting skills are relatively set. One alternative for youth with severe writing problems is to teach the student to type. Typing does not require the same motor control as handwriting, and the process of spelling, punctuation, and syntax, can be integrated into the typing instruction.

Speech

Appropriate spoken language is particularly important to the youth in search of a career. Personnel directors and job supervisors frequently form estimates of a student's ability as a result of their initial interaction with them. Despite the fact that spoken language is an important academic and social tool, very little research has been done in this area (Wiig and Semel, 1975). The lack of research is particularly alarming since many handicapped adolescents have a language delivery pattern which deviates from expected behavior (Smith and Payne, 1980; Alley and Deshler, 1979, and Wiig and Semel, 1976). Among the behaviors cited as characteristic of inadequate and inappropriate oral production are:

A. Inability to employ formal and informal language in appropriate settings and under appropriate conditions.

B. Inadequate vocabulary and inappropriate use of words.

C. Failure to complete sentences during oral discussion.

D. Inability to speak logically for more than a few minutes.

E. Inability to shift speech to reflecting change tenor of the discussion.

F. Inability to follow-up on the previous speakers statements and ideas.

G. Poor speech cadence.

The increased emphasis on the teaching of the handicapped adolescents has resulted in the development of instructional strategies to promote improved spoken production among youth. The approaches include the following imperatives:

A. The student must have knowledge of the theme being discussed.

B. The student should have an opportunity to organize their thoughts prior to speaking.

C. When the student presents material and has had made errors, overt corrections should not be made. Restatements of the material by the teacher, and demonstrating the corrected procedure, is the most viable approach.

D. Have the student discuss things that they have done. Have them describe the activity in a sequential logical manner.

E. The teachers should provide a consistent model of appropriate spoken language usage.

In order to assist the handicapped youth in the specialized environment of history, journalism, or drafting, school personnel need to adapt existing curriculum, materials, and procedures to interface with the handicapped students learning impairment. To achieve the adaptive process, the content oriented teachers need to employ procedures for instruction, using a variety of reading, mathematics, and other process area approaches.

Regretably, college and university training has not prepared

content oriented teachers to understand the underlying processes related to reading, mathematics, and other academic areas. Most college and university preparation has focused on providing these personnel preparation in the organization and presentation of their content area. As a result, they are often unprepared to effectively teach students with low performance skills in the basic learning processes (Miller, Sachs, Phelps, Batsche, Erekson, Hoernecke, Wagner, Hasbargen, and Greenan, 1980). The University of Illinois, University of Nebraska, and Southern Illinois University at Carbondale have demonstrated that secondary school personnel can, however, be trained, via inservice programs, to provide specialized services to norm violating youth.

Job Training

Classroom learning truly comes alive when it provides the tools by which the youth is able to engage in interesting and rewarding activities in the outside world. For example, reading skills, painfully acquired in a resource room suddenly allow the youth to read a parts manual. Mathematic skills become functional in allowing the youth to work as a checkout clerk at a grocery store.

Unfortunately, it cannot be assumed that a youth has the basic academic skills that will allow him or her to compete in even the most basic occupation. Traditional remedial approaches to basic skill deficits which recycle the youth through academic settings often result in the adolescent dropping out of school because of the lack of relevance of instruction on due to frustration.

Integrated Basic-Skill Development

An alternative approach to recycling the adolescent in nonfunctional remedial classes is to integrate basic skill development (math, reading, writing, social skills, etc.) with more interesting and functional occupational skill training tactics. By pairing deficit basic skills with preferred occupational skill development experiences, relevance and functionality are insured. The two basic processes involved in developing an integrated occupational skills-basic skills program are the occupational analysis and task analysis.

Occupational Task Analysis involves the identification of all of the prerequisite skills required to succeed in a particular field. These skills will then become the objectives of an integrated education program. Occupational analyses consist of: (a) determining the youths career-vocational interests, (b) identifying specific jobs available in the community which match the youth's interests, (c) visiting with the youth establishments which include the identified jobs, (d) interviewing managers and employees to determine specific responsibilities associated with the jobs, (e) constructing a checklist (see Figure 3) which enumerates the component skills associated with each job.

Once the occupational analysis is completed, the resulting checklist may be used to evaluate the youth's present skill level. It can be compared to the identified responsibilities. Based on the comparison, the youth and educator may determine that the job

is inappropriate because of excessive entry level task demands or establish a program designed to develop those deficiencies. In this case, a criteria for job placement can be established. This criteria represents the minimum skill level the youth must possess before placement on the job may occur. The sequential activities involved in an occupational analysis are presented in Figure 4.

Task Analysis. Once a contract is formalized between the youth and instructor, the general sequence of training activities can be delineated into task analyses. Each task analysis involves breaking down the specific job responsibilities into their component parts. The youth is then taught to complete the sequence of smaller steps. The size of the steps in the task analyses are a function of the learning characteristics of the youth. Figure 5 contrasts large steps designed for a mildly handicapped youth with small steps used with a moderately handicapped individual.

Basic skills in the occupational training sequence are included only when identified in a task analysis sequence. Thus, the relationship between academic objectives and occupational performance becomes direct and concrete. The task analysis of ordering auto parts in Figure 6 exemplifies the integration of basic academic skills through the task analysis sequence.

CONCLUSION

Educational programming needs to represent the interests and career goals of the handicapped adolescent. The career goals established for the youth should reflect the school and student's best estimate of personal options. Career preparation programming requires the overt acknowledgement of all school personnel. The interface between the various personnel is vital to the instruction of a youth and the efficacy of the program. Various segments of school personnel have minimized their implied and expressed responsibility toward the handicapped youth. Recent State and Federal legislation, however, has delineated the role of the content oriented teacher as well as ancillary personnel in preparing handicapped youths for careers. Although the area of career preparation is relatively new (Brolin, 1976), it offers school personnel a broad and flexible model to serve the unique interests of all students. Career preparation programming may serve to bridge the gap between school and career and allow learning and instruction to truly come alive.

FIGURE 3

- Cleans, removes, and installs spark plugs.
- Adjusts and bleeds brakes.
- Replaces wheel cylinders.
- Replaces master brake cylinder.
- Inspects and flushes radiator.
- Tests coolant temperature levels.
- Removes the tires from a car.
- Repairs tube or tubeless tires.
- Installs new tires.
- Balances tires.
- Rotates tires.
- Lubricates vehicles.
- Replaces air cleaners.
- Cleans or replaces gas filters.
- Washes and waxes inside and outside of automobiles.
- Sells auto accessories.
- Replaces oil filters.
- Checks oil, brake fluid, power steering fluid, and automatic transmission fluid.
- Washes windshields, replaces windshield wiper blades.
- Fills gas tanks, radiators, and window cleaning solvent.
- Make change for cash customers, check authenticity of customer's identification.
- Replace distributor points.
- Keeps daily records of sales, inventory changes.
- Orders auto parts.
- Opens and closes station on time.

(Mager and Beach, 1967).

FIGURE 4

1. Assess career preferences.

2. Survey the youths community to identify high preference jobs.

3. Accompany the youth to those jobs.

4. Collect data regarding responsibilities associated with the jobs.

5. Construct a checklist of entry-level task demands.

6. Evaluate the youth's current skill level against the task demands.

7. Determine the discrepancy between the student's existing skills and the prerequisite skills.

8. Establish curriculum of training activities or, select an alternate job.

FIGURE 5

Task Analysis for Tire Changing

Mildly Handicapped Youth	Moderately Handicapped Youth
1. Apply parking brake	1. Apply parking brake
2. Remove hubcaps	2. Insert tire iron end into crack between hubcap and wheel
3. Loosen lug nuts	3. Pry away hubcap
4. Jack up car	4. Place box end of tire iron on the first lug nut
5. Remove lug nuts	5. Rotate iron until loose
6. Remove tire	6. Repeat steps 4 and 5 until all lug nuts are loose
7. Install new tire	7. Locate placement for jack
8. Replace lug nuts	8. Place jack in the identified location
9. Lower jack	9. Insert tire iron end into jack lever
10. Tighten lug nuts	10. Move tire iron up and down, raising the car until the tire is off the ground
11. Replace hubcaps	11. Remove each of the lug nuts by hand
	12. Remove tire by placing hand on opposite ends of the tire and pulling out
	13. Insert new tire by aligning lug holes with lugs and pushing in.

FIGURE 6

Task Analysis	Basic Skill Requirement
1. Identify understocked or unstocked items	Subtraction (number present from number required)
2. Record appropriate part numbers on the order form	Identifying and writing numbers
3. Locate price from parts catalog and record on appropriate column on the form	Reading, reference book usage, identifying and writing numbers
4. Compute subtotal for the cost of the order	Addition
5. Determine tax	Multiplication by a decimal
6. Determine total	Addition
7. Write address of station on order form	Writing

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